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NOVEMBER, 1926

COMMUNICATIONS

AN UNTIED CONJUNCTIVAL SUTURE AND CONJUNCTIVAL BRIDGE IN CATARACT EXTRACTION. RESULTS AND CONCLUSIONS*

BY

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EVEN a superficial study of the literature will convince one of the fact that ophthalmologists have been searching for a method by which a cataract wound can be quickly, safely, and securely closed, but we know by observation that few men employ a suture or a conjunctival bridge as a routine procedure, although they admit its value and attempt to introduce it after vitreous has been lost.

Apparently, Williams[1] of Boston was the first to describe the use of a suture in the cataract operation, first introducing a corneal suture after section, but later making a small conjunctival flap, and finding that by this procedure the wound could be more easily and satisfactorily closed. A similar procedure was advocated by Chisholm[2] in the same year, and by Suarez de Mendoza[3] twenty-two years later, although the latter rejected Williams' technique as too dangerous, and advocated that the sutures be inserted before making the section. Würdemann[4] uses two conjunctival sutures after the section is made, if a conjunctival

*Read before the Section on Ophthalmology of the American Medical Association, Atlantic City, 1925.

flap has been obtained, and the van Lint flap, if the section is in the cornea. The method of suture which has found the greatest popularity, however, is the one devised by Kalt[5] in 1894. By his technique, the suture is placed in the cornea and sclera before the section is made, but it seems that one weakness of this method is that it provides no conjunctival flap. This objection appears to be met by the modification of Kalt's suture proposed by Ribas[6] whereby the suture is placed in the conjunctiva and conjunctival flap. Kalt's method was used by Ellett[7-8-9] with excellent results in the extraction of over 400 cataracts, and Moret[10] strongly advised employment of the suture, because the end results were better. Schweigger[11], on the other hand, tried a corneal suture twenty-seven times, and then abandoned it because he had three cases of severe iritis, six of prolapse of the iris, and several cases in which there occurred attacks of keratitis.

Since the result of a cataract extraction depends in large measure on rapid and permanent closure of the wound, Maddox[12] attempted to find some non-irritating cement for the wound. The application of newly melted wax proved successful in some cases but the results were not uniformly good, so that in 1911 he[13] advocated insertion of two or three sutures to control loss of vitreous, for the promotion of healing and the prevention of infection. For piercing the sclera and drawing back the suture, he employed a discission needle having a fine eye.

An ingenious suture has been suggested by Frisch[14], who formerly used through-and-through corneal sutures, but gave up that method because irido-cyclitis developed in several cases. The new suture is knotted at one end, and the needle is inserted in the cornea 1.5 mm. to the temporal side and 2.5 mm. below the upper corneal margin, emerging about 1.2 mm. above insertion, without entering the anterior chamber, and the thread is pulled through until the knot is in contact with the cornea. This suture can be placed lower if the operator prefers to have the incision terminate high in the cornea. The suture is carried from its corneal exit into the conjunctiva 4 mm. above the limbus, emerging 1.5 mm. above this. With the aid of a strabismus hook, the thread between the corneal and conjunctival insertion is pulled up to form a loop, 12 to 15 mm. long, so that the thread cannot interfere with making the section or obstruct delivery of the lens. After incision and extraction, the suture may be tied, leaving the knot *in situ* or eliminating it from contact with the cornea by traction on the corneal end of the suture and then making a new knot. He claims instantaneous control of the wound, prevention of vitreous loss after the cataract is out of the wound, and greater safety if a scoop must be used; also that the operation is not prolonged, for the suture can be inserted while waiting for anaesthesia of the iris.

The use of a conjunctival bridge was advised by Lamb[15] in 1913, and by Cluckie[16] in 1909, the latter saying "the broader and longer the conjunctival attachment to the cornea, the greater the chances for success and speedy recovery." Several operators have safeguarded their extractions by using a conjunctival bridge or by making an incision in the conjunctiva, undermining it, and making a subconjunctival extraction.

Bajardi's[17] subconjunctival extraction is practically the same as Cluckie's operation, as the incision is made with a Graefe knife; in fact all these operations are really modifications of Czermak's[18] subconjunctival extraction which was first modified and simplified by Dimmer[19] in 1907. They both used a keratome in making the corneal incision, enlarged the opening with scissors, and, instead of making a conjunctival bridge, undermined the conjunctiva through an incision placed at some distance from the cornea.

Howard[20] stated in 1924, that he had given up using the conjunctival bridge described by him in 1923[21] because of the fact that in swollen, mature, senile lenses, and in many immature cataracts, soft lens matter had to be left in the anterior chamber, owing to the small opening through which the lens had to pass. He now uses the sclero-conjunctival suture described by Verhoeff[22] with which he obtains excellent results, for there was no loss of vitreous in a series of one hundred extractions, many of which were intracapsular. Howard names three disadvantages in using a suture in cataract operations, two of which are overcome, at least in part, by the suture to be described. The first disadvantage named is the time required to introduce the suture, but it seems that this should not be of sufficient importance to be considered, when compared with the greater safety afforded by a suture. The second disadvantage is that the flap does not heal as smoothly as in an unsutured case; this objection does not seem to apply to the technique herein described. The third disadvantage mentioned is removal of the suture; Melville Black[23] considers this the chief objection because something like a second operation must be imposed upon the patient and the surgeon. Removal of this untied suture is a simple procedure, for one end is pulled after the other has been cut close to the conjunctiva. Wood[24] suggested the use of four or five day catgut sutures in order to obviate the necessity for removal, but catgut is difficult to manipulate. There are other more serious disadvantages than those Howard names; these will be considered later. He also speaks of the necessity for having an assistant; with the untied suture this is not essential. Many operators consider a suture unnecessary, but it apparently depends largely on the type of patient to be operated on whether or not a suture is required. Certainly, with the patients seen at

the New York Eye and Ear Infirmary, a suture is an added safeguard against many of the complications encountered in the cataract operation. Several authors speak of introducing a suture if vitreous is lost, but it is obvious that to attempt to introduce a suture, when the patient is restless and vitreous is actually escaping, is to select an inopportune time.

We believe the suture to be described possesses added advantages over the tied suture and conjunctival bridge, and has fewer of their disadvantages. A preliminary report in regard to the use of this untied suture in cataract extraction appeared several months ago[25]. After submitting that report[26] two important changes in technique have been made, and additional experience has been gained.

Indications for Using this Untied Suture

We personally use the suture in every cataract extraction, but believe that it is certainly indicated in the following conditions:

(1) Patients with one eye, particularly when the loss of the other has been due to haemorrhage.
(2) Cataract complicated by glaucoma.
(3) In all simple cataract extractions.
(4) Where general anaesthesia is used.
(5) Where there is tendency to squeeze, because, even though we can prevent this during the operation, squeezing may be disastrous during convalescence.
(6) Where there is a tendency to cough, or where asthma or bronchitis are factors.
(7) In operations upon the insane.
(8) Where the lens is dislocated or subluxated.
(9) Where there is fluid vitreous.
(10) In the aged, where the recumbent posture and the prolonged use of adhesive dressings are contraindicated.
(11) Where vitreous has been lost.

Contraindications

We know of no contra-indications, unless extreme atrophy of the conjunctiva may be considered as one.

Pre-operative Treatment

We believe that the pre-operative preparation is important, and realize the difficulty of carrying out any routine procedure. The method we try to adhere to and have used in most of the private patients operated on is the following:

A complete physical examination of the patient is made, including blood chemistry, examination of the sinuses, and in many instances roentgenograms of the sinuses, and the teeth. The

blood Wassermann test and urine analysis are made. A 0.3 per cent. solution of zinc sulphate is instilled in the eyes three times a day, and a 1 per cent. solution of mercurochrome – 220 soluble twice a day for one week prior to operating. For several days before the operation the patient is put on a light diet. A mild laxative is prescribed the day before, and an enema is given the morning of the operation. Thirty grains (2 grm.) of effervescent triple bromide are administered the night before the operation, and a hypodermic injection of codein phosphate is given three-quarters of an hour before starting the operation, providing there has been no trouble from the use of the codein when the preliminary iridectomy was performed. One drop of a 3 per cent. solution of atropin is instilled in the eye two hours before the operation. We have followed Bell's method[27] of using two drops of a 1 per cent. solution of silver nitrate in each eye one hour before, and a 25 per cent. solution of protargin mild just before and just after the operation, and we believe it to be of value in preventing post-operative infection. Lindner[28] has used Bell's method since October, 1923, and reports only one post-operative infection. He believes that most of the post-operative intraocular infections originate in the conjunctival sac, and therefore the saprophytes of the conjunctival sac and cornea must be responsible, usually pneumococci, staphylococci, and xerosis bacilli. His theory is that the silver removes the dead epithelium, and with it the saprophytes, and protargin mild inhibits the growth of micro-organisms in the first twenty-four hours after operation. For paralyzing the eyelids, we have followed Robison's[29] technique, and have found it most efficacious. An intradermal test is made with lens protein in all patients who have immature cataracts, as suggested by Verhoeff[30]. If this test is positive the patient is desensitized before the operation. The lens substance may now be obtained from the research laboratory of Parke, Davis and Company, which greatly facilitates the work.

Technique of Operation

First Stage.—The suture may be partially or completely introduced before, but preferably after, making the corneal incision. A subconjunctival injection of 1 per cent. cocain solution with two drops of 1 to 1,000 adrenalin solution is made above the limbus, which facilitates the making of the conjunctival bridge. The conjunctiva surrounding the upper one-fourth of the cornea is then undermined with a special pair of scissors with long, thin blades,* working through a button-hole incision in the conjunctiva, 8 mm. above and 8 mm. temporal to

*These scissors and a special needle holder without a catch may be obtained from George Tiemann, 107 East 28th Street, New York.

the vertical meridian in the right eye, and 8 mm. nasal to the vertical meridian in operations on the left eye. It is preferable to use a needle holder without a catch. The suture used is No. 1 braided black silk impregnated with paraffin and is 40 cm. long. It is introduced by means of a small curved cutting needle, 3 mm. above the outer canthus of the right eye, or the inner canthus of the left eye, picking up a 4 mm. strip of conjunctiva. Another bite is then taken 1 mm. below the first. The loop thus formed is left long and drawn to one side. The needle is now introduced

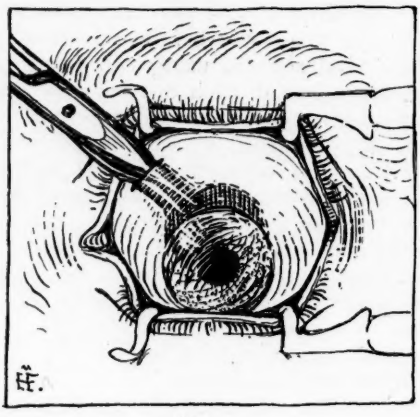

FIG. 1.

Conjunctiva above the cornea undermined through a laterally placed button-hole incision.

horizontally, and engages a 3 mm. strip of conjunctiva. The points of entrance and exit of the needle are on opposite sides of the incision made for undermining the conjunctiva. The suture is now drawn to one side while the section is made.

Second Stage.—The cataract section is made in the limbus, leaving a conjunctival bridge in the centre of the corneal wound, which is as wide as possible and about 4 mm. long.

Third Stage.—The needle is now reintroduced and grasps a 3 mm. strip of the conjunctival bridge 1 mm. above the upper margin of the cornea, at right angles to the vertical meridian. The needle next grasps a 3 mm. strip of conjunctiva, 8 mm. above the upper margin of the cornea, 8 mm. nasal to the vertical meridian of the right eye, or 8 mm. temporal to the vertical meridian of the left eye. The suture then embraces a 3 mm. strip of the bulbar conjunctiva, 3 mm. above the inner canthus of the right eye or the outer canthus of the left eye. The needle is reinserted 1 mm.

below this bite, making a loop which is then drawn taut, fixing one end of the suture. The central part of the suture is usually

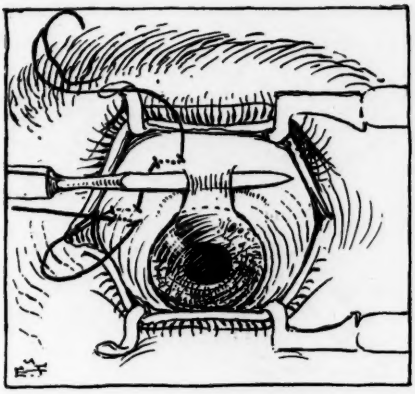

FIG. 2.

Cataract section completed leaving a centrally placed conjunctival bridge. Suture partially introduced.

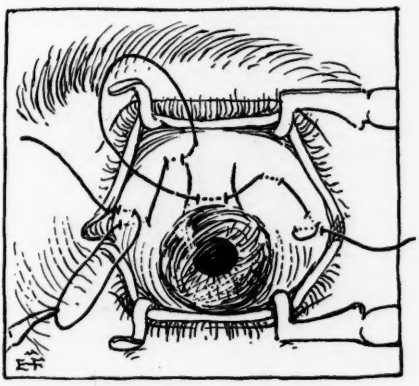

FIG. 3.

Suture in place and central loop drawn to one side.

looped slightly and drawn to one side during the extraction of the lens.

Fourth Stage.—The conjunctival bridge is now cut above the suture by the special scissors and the lens is extracted. An attempt is usually made to extract the lens in capsule by means of Kalt's forceps, and if this fails, or the procedure seems too

dangerous, an attempt is made to obtain a large piece of the anterior capsule by means of Schweigger's forceps.

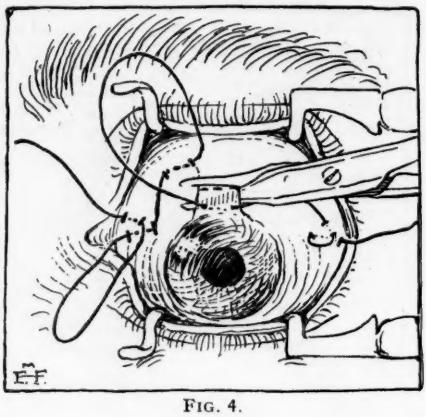

FIG. 4.

Conjunctival bridge being cut with Stevens' scissors, before the lens is extracted.

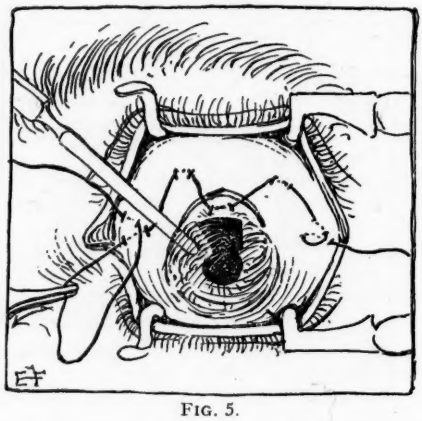

FIG. 5.

Wound closed by traction on suture while pillars are replaced and the anterior chamber is irrigated.

Fifth Stage.—In order to close the wound, the loop of the suture which was not drawn taut is pulled, as this controls the upper flap. It has been found practical to close the wound with the suture before irrigating the anterior chamber or attempting to replace the pillars of the iris, particularly in patients who are squeezing or are becoming restless.

Sixth Stage.—The lips of the wound may be approximated with the eyelids closed, and without further manipulation of the eyelids

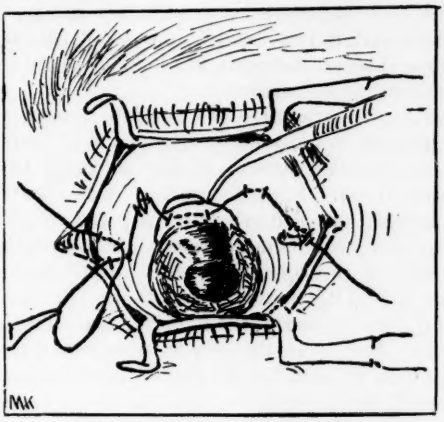

FIG. 6.

Suture in place; lips of wound being sealed by iris forceps.

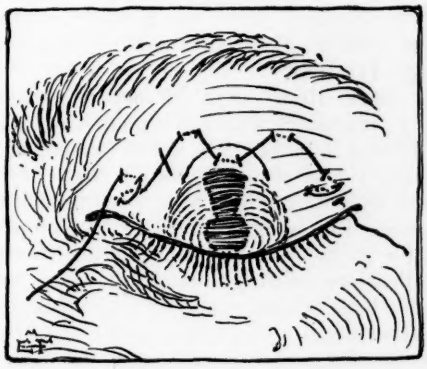

FIG. 7.

Eyelids closed showing suture in place and wound sealed.

or the eyeball. If the patient is sufficiently tractable the lips of the wound are sealed, as shown in Fig. 6, by pressing the edges together with toothed iris forceps. As the traumatism produced by the iris forceps and by the scissors is an excellent method for affecting early, firm closure of the wound, it makes unnecessary the search for some adhesive substance, as suggested by Maddox.

This procedure has been used for several years in closing other wounds, and is particularly useful in closing conjunctival wounds, after preliminary iridectomy and the de Wecker capsulotomy.

The suture may be passed through the lips of the wound two or three times, but it has been found most satisfactory to make only one bite. The suture ends are held in place on the nose and temple by means of collodion.

Post-operative Treatment.—No atropin is used after operation, but a light dressing is held firmly in place over both eyes by means of zinc oxide adhesive plaster, gentle pressure being exerted on the eye operated on. Ring's mask is used, and the eye which has been operated on is marked by a piece of adhesive tape, as suggested by Snyder. The patients are permitted to sit up in bed on the day of the operation, and are allowed out of bed the following day. The eye is dressed on the second day, and, if the wound has healed satisfactorily, the dressing is removed from the other eye. If the iris is not well dilated 3 per cent. atropin ointment is used. The eye is usually not dressed again until the fourth day, when the suture, if it is causing irritation, is removed by cutting one end close to the conjunctiva, and pulling the other, after the instillation of two drops of 1 per cent. phenocain solution at three-minute intervals.

The conclusions drawn in this paper are based on the study of 51 cases: 32 operated on by us, and 19 by other operators at the New York Eye and Ear Infirmary, through the courtesy of Doctor George H. Bell.

Of the 32 cases there were 18 mature senile, 7 secondary, 5 immature, 1 traumatic, and 1 incipient cataract; 4 were complicated by diabetes, 3 had uveitis, 6 had glaucoma, 2 had recurrent attacks of iritis, 1 had sinusitis, and 1 had chorioretinitis.

Twenty-nine were extractions after preliminary iridectomy, one was an extraction following a modified Lagrange operation, and two were simple extractions with peripheral iridectomy.

The complications during operation were as follow: In 3 cases the use of Kalt's forceps was unsuccessful and Schweigger's forceps was resorted to. A small amount of vitreous was lost in one case, because the patient looked up as the capsule forceps were being used.

Of the complications reported following operation there were 2 cases of uveitis, 4 of iritis, and 4 of keratitis. Soft lens matter was present in two cases, two patients had haemorrhages into the anterior chamber. A pillar of the iris was incarcerated in the case of a patient who persisted in squeezing and who got out of bed three times the night following the operation. Prolapse of the iris occurred in one of the two simple extractions; even though a peripheral iridectomy had been performed. This patient had

kerato-iritis for three months following the extraction, and the inflammation persisted until three alveolar abscesses which had been left following extraction of her teeth were curetted. The prolapsed iris had to be excised in this case.

Iris prolapse occurred then in 2, or 6.25 per cent. of these 32 cases, and 1, or 3.12 per cent. required operative intervention. Vitreous was lost in 1, or 3.12 per cent. of these cases, but there were no infections.

We were able to obtain post-operative records of vision with correction in 12 cases.

1. + 10.0 sph. + 0.5 cyl. 180° = 20/20 add + 4.0 sph. Jaeger 1.
2. + 1.0 sph. + 3.0 cyl. 180° = 20/70 add + 4.0 sph.
3. + 7.0 sph. + 5.0 cyl. 150° = 20/50
4. + 12.0 sph. + 2.0 cyl. 30° = 20/40
5. + 10.0 sph. + 2.5 cyl. 18° = 20.40
6. + 10.0 sph. = 20/70
7. + 10.0 sph. + 3.5 cyl. 165° = 5/200
8. + 10.5 sph. + 1.5 cyl. 30° = 20/30 add + 3.5 sph. Jaeger 1.
9. + 10.0 sph. + 4.5 cyl. 30° = 20/20 add + 5.0 sph. Jaeger 1.
10. + 10.0 sph. + 4.5 cyl. 180° = 20/20 - 1
11. + 9.0 sph. + 2.0 cyl. 180° = 20/70
12. + 10.5 sph. + 2.0 cyl. 175° = 20/30+2 add + 4.0 sph. Jaeger 1.

Of the 19 cases operated on by other operators there were 13 mature senile cataracts, 2 immature cataracts, 1 posterior cortical cataract, and 1 complicated cataract.

One case was complicated by diabetes and 1 by glaucoma. There were 16 extractions after preliminary iridectomy, and 1 combined extraction. Loss of vitreous was reported in 5 cases. The complications after operation were soft lens matter in 3 cases and striate keratitis in 1 case.

The 7 post-operative records of vision with correction were as follow:

1. + 11.0 sph. + 1.0 cyl. 180° = 20/40 add + 4.0 sph. Jaeger 1.
2. + 10.0 sph. = 20/40 add + 3.5 for near.
3. + 10.0 sph. + 1.0 cyl. 180° = 20/30 add + 4.0 for near.
4. + 8.0 sph. + 1.5 cyl. 10° = 20/50
5. + 3.0 sph. + 2.0 cyl. 15° = 20/70
6. + 10.0 sph. + 2.5 cyl. 180° = 20/40
7. + 12.0 sph. + 0.75 cyl. 15° = 20/20 - 3 add + 3.0 for near.

There was loss of vitreous in 5 of the 19 cases operated on by other operators, all resident surgeons of the New York Eye and Ear Infirmary, or 26.3 per cent., but there was no prolapse of iris and no infection.

There was loss of vitreous in 6, or 11.7 per cent. of the 51 cases, and prolapse of the iris in 2, or 3.9 per cent. of the cases. There were no infections.

Although the percentage of vitreous lost by the resident surgeons was high the results were good. It is our belief that the presence of the suture prevented greater vitreous loss in several of the cases and permitted the completion of the operation with careful replacing of the iris pillars and closure of the wound by iris forceps.

Advantages of a Suture in Cataract Extraction

(1) The secondary membrane is not apt to be as dense with a suture as without one, for the anterior chamber is restored early. In several cases an appreciable anterior chamber has been seen within a few minutes, as 0.5 per cent. normal saline solution is used to irrigate and fill the anterior chamber, and the lips of the wound are sealed by iris forceps. The rapidity with which secure closure of the wound may be effected makes one feel safe in removing all the soft lens matter.

(2) It was believed that the amount of post-operative astigmatism was diminished, and Clark[31] has found this to be true for the conjunctival flap without a suture; but further experience leads us to believe that the suture had little if any influence in reducing the amount of astigmatism except indirectly by making post-operative complications less likely to occur.

(3) Loss of vitreous is sometimes prevented. If loss of vitreous has occurred or is feared the wound may be closed immediately.

(4) Iris prolapse is usually prevented. The anterior chamber is quickly restored and the wound firmly closed.

(5) The danger of infection is diminished. As the wound is quickly closed the danger of infection by direct extension from the conjunctiva is lessened, and as the complications of vitreous prolapse, eversion of the cornea, and prolapse of the iris are uncommon, the danger of infection from these sources is also diminished.

(6) The period of convalescence is reduced, since the complication of delayed wound closure is seldom seen as most of its causes are eliminated, and wound healing is accelerated by the close approximation of the wound edges.

(7) Eversion of the cornea after operation is prevented, and if it occurs during the operation it can be corrected easily by traction on the suture.

(8) The occasional total loss of an eye is probably prevented. In patients, normally sane, who become violent after operation, and particularly in insane patients and those who vomit following operation, the loss of an eye may possibly be avoided.

(9) Post-operative discomfort from gas and posture is lessened. The patients are allowed a back-rest or pillows immediately after operation and are permitted to be out of bed the following day.

(10) Post-operative delirium is reduced to a minimum. The patient may be given the partial use of the other eye the day after operation. This is done by cutting a small hole in the Ring's mask permitting vision above the horizontal plane.

(11) If vitreous has been lost the wound lips may be drawn tightly together, squeezing out the vitreous from between the cornea and sclera, thus permitting the wound to heal more rapidly.

(12) A suture is of greatest value in an operation in which a general anaesthetic must be given, for patients who squeeze and cough, and in operations on the insane. In patients who have glaucoma and cataract, or who have lost one eye, a suture is certainly indicated.

Added Advantages of an Untied Suture and Conjunctival Bridge

(1) The wound may be closed rapidly by a single motion, even when the patient is squeezing, the speculum has been removed and the eyelids are closed; this is also true with Frisch's[14] suture.

(2) The ends of the suture are held out of the field of operation by conjunctival fixation.

(3) The suture may be removed with ease, it being necessary to pull only one end of the suture after cutting the other close to the conjunctiva.

(4) There is no knot and there are no loose suture ends, which frequently irritate the conjunctiva and sometimes the cornea.

(5) The suture is not in the operative field while the section is being made, for protection is provided by the conjunctival bridge. Some operators prefer to introduce this suture before the section is made, but we have found that the conjunctival bridge affords sufficient protection.

(6) The suture may be drawn taut, closing the wound at any time during the operation, and may be easily loosened. As the suture is easily controlled, permitting the wound to be opened and closed, the anterior chamber may be irrigated and the iris pillars replaced while the wound is partly closed. These two points are also true with Frisch's suture.

(7) A large conjunctival flap is always easily obtainable even though a preliminary iridectomy has been performed.

(8) As the wound is held closed by the suture, and the conjunctival flap is sealed by iris forceps, iris prolapse is a rare complication, even though vitreous has been lost.

(9) If vitreous has been lost and a loop or spoon must be used the ease with which the wound may be opened and firmly closed has apparently prevented greater vitreous loss.

Disadvantages of a Suture in Cataract Extraction

(1) One or two minutes are added to the time of operation.

(2) The suture may produce slight irritation, particularly if a knot and loose ends are left. This disadvantage is minimized by the untied suture.

(3) It is difficult and sometimes dangerous to remove a suture in certain intractable patients, even though it is left in for ten days. This difficulty is also reduced to a minimum by the untied suture.

(4) The section is made more difficult owing to the presence of the suture loops and ends. This disadvantage is absent in the untied suture, for a bridge of conjunctiva is left for protection, and the suture is only partially introduced until after the section has been made.

We believe the following conclusions are justified:

(1) The advantages of using a suture in cataract operation outweigh the disadvantages.

(2) An untied suture and conjunctival bridge combine the advantages of a tied suture and conjunctival bridge, and we believe that the disadvantages are minimized or eliminated.

As authors agree that a suture is of value if vitreous is lost, why not have a suture in place before this accident occurs?

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CLINICAL OBSERVATIONS WITH THE SLIT-LAMP

BY

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PHILADELPHIA

THE popularity of the slit-lamp in ophthalmic examinations has led enthusiastic clinicians to claim more virtues for the instrument than can always be substantiated. In routine examinations it is likely to be disappointing, but in selected cases there is no question of its importance. But, even here, the information, while frequently interesting, will be of no more value in guiding the treatment than the more commonplace instruments and methods. Other observers have also stressed this feature. The following cases well illustrate the value and some of the limitations of this type of ophthalmic examination.

Case 1.—This patient was a young man, born in America of Yiddish-Polish parentage who came to this country from Warsaw thirteen years before. The father and mother were first cousins. One brother, now deceased, was born deaf and dumb. The patient presented features that I am inclined to regard as in some way connected with this consanguinity of parentage.

Looking into the eyes with the pupils dilated and employing the ordinary oblique illumination and condensing lens, a stellate lenticular opacity was seen in each eye. With the ophthalmoscope with a high convex lens, these opacities assumed a more robust character. In the right eye the stellate opacity seemed to occupy the entire posterior pole of the lens and resembled a piece of coral having six main branches or arms which subdivided again and again as the periphery was reached. These arms had thickness and were roughened as is the case with coral. They were not flat, although the picture with the ophthalmoscope did not show more than two dimensions. In the left eye there were eight branches. This type of opacity I have liked to describe as "moss agate." The left eye showed lamellated changes in the vertical meridian of the lens, more or less angularly situated, which presented the reflexes of diffraction. The fundus showed atrophic changes in the retina, the nerves and the vessels together with stellate pigment deposits in the periphery of the fundus—a retinitis pigmentosa in which the pigment was not profuse, but in which the atrophic changes were decidedly pronounced.

Upon examination with the slit-lamp the features of this case became greatly amplified. In the right eye the opacity in the lens became definitely located in the posterior capsule. The

aqueous beam showed the presence of debris. The stellate figure in the posterior capsule showed some thickness to its structure, and was yellowish brown in colour with light-reflecting surfaces. With the ophthalmoscope it was black and the thickness had to be assumed. In the left eye the posterior opacity was not quite so dense, but the lens substance showed the vertical lamellae rather angularly placed, which gave mother-of-pearl reflexes. It is difficult to state whether the slit-lamp added much in the diagnosis over the other methods of examination, but certain it is, it considerably amplified the information obtained. The status of the case could have been determined without it, although it provided an extremely good case for clinical demonstration.

Case 2.—This patient was the subject of trachoma in the right eye with pronounced pannus. A peridectomy had been performed and the minute examination of the cornea was deemed advisable to note the effect. The iris incidentally was found to be reacting normally to light stimuli and there were no adhesions. It would have been impossible to determine this with the ordinary methods of examination. The intense illumination and the corneal microscope demonstrated this. The vascularity of the cornea was readily demonstrated and all the spaces were found to be filled in with inflammatory exudate. Empty vessels were also to be seen. The involution of the corneal inflammation could be determined in places, thus confirming the gross improvement noted by the patient. The microscopy of the cornea afforded by this means of examination is truly wonderful.

Case 3.—Here the left eye had been the subject of a remote penetrating injury involving the cornea and iris. There was complete obliteration of the pupil with complete posterior synechiae. Part of the iris was incarcerated in the corneal scar above. With the slit-lamp the cornea showed two superficial vertical scars with a highly refracted elliptical area in the deeper layers, suggesting a deep vacuolization of the cornea. The cornea also showed evidence of degeneration. The vessels in the upper part of the cornea extending to the iris produced a very interesting picture. In this case the slit-lamp only added detail to the obvious.

Case 4.—In this case in both eyes there had been remote interstitial keratitis. The patient had been under observation since early childhood and had progressed towards resolution after most intensive treatment. He was now apparently in very good condition. Hutchinson teeth could be demonstrated. The slit-lamp showed in the right eye that the cornea was still quite hazy and the seat of small curved deposits and some pigment. Posterior

synechiae were demonstrated below and a fibrous cloudiness of the anterior capsule could be made out. Many empty and many partially filled vessels could be made out in the cornea. The demonstration of these vessels and nerves in the cornea by means of the slit-lamp is one of the most interesting features in the use of this instrument.

Case 5.—In the left eye, vessels could be made out in the cornea without any trouble. Pigment was present in the anterior capsule, which was quite rough and appeared to be organized. A small, round, yellow floating body suggesting at times a posterior polar cataract, and behaving very much like a jelly fish in its migrations, but doubtless a bit of organized lymph, could be seen moving about with the grace of a descending parachute. This appeared golden yellow, like a ball of glowing metal at times, and gave the entire picture a most unusual appearance.

Case 6.—Remote iritis. This case showed the changes in the crypts and vessels of the iris in the usual manner. The picture shown by the slit-lamp in cases of this character is very interesting but it must be confessed that up to the present the knowledge gained thereby has not influenced the practical side very much.

Case 7.—Posterior polar cataract in both eyes. Lenticular changes always present interesting features with this form of examination, and it is always with great difficulty that we can leave them for others of more practical importance. The history stated that the trouble with the eyes had existed from birth. In the right eye there was a central corneal opacity, with wrinkling of the anterior capsule immediately behind the central corneal opacity. A faint line extended posteriorly from the dot on the anterior capsule to the opacity in the posterior capsule which was considerably larger, resembling a small pearl collar button with its base placed in the posterior capsule and the tip anteriorly. The entire lens was highly refractive.

In the left eye the condition was much the same, including the central corneal opacity and the dot on the anterior capsule of the lens. Those that regard these conditions as originating in a source anterior to the eye will obtain some justification for their views in the findings on the anterior surface in cases of this character.

Case 8.—Boy with irideremia of both eyes. This boy was completely blind. There was no vestige of iris in either eye, and a pronounced glaucoma existed in both eyes. In the right eye there was a marked staphyloma at the corneo-scleral junction—the weakened coats could no longer stand the high

intraocular tension. Perhaps it was merely coincidental but the lens appeared to be closer to the external coats of the eye above than below. There was no staphyloma below. While the pupillary area was filled with a pinkish reflex there were other features of interest. In both eyes the supporting fibres of the suspensory ligament of the lens, which we have already remarked about at length in the report of a case of ectopia lentis, were shown here to great advantage. The anterior capsule of the lens showed a whitish reflex, and the body of the lens was highly refractive. In the posterior capsule in both eyes there were large stellate figures similar to those observed in the case reported first in this series. This case is progressing rapidly towards incurable blindness, if it has not already reached that point. It presents many problems for careful consideration. The presence of glaucoma in the absence of the iris gives us something to ponder about. Here we have the equivalent of a total iridectomy yet tension is high and the globe threatens to rupture above. The cornea, however, presents none of the characteristics of ordinary buphthalmos. The possibility of benefit from a posterior sclerotomy engages our attention. More extensive surgical interference seems rather hazardous in view of the obvious disintegration of the ocular structures as indicated by the staphylomatous change.

Case 9.—Cyst of the cornea. This case was examined and reported in another connection but the previous examination was made with the pupil in repose. At this time the pupils were dilated by atropin. This youngster had been operated upon about two years previously for the relief of a convergent squint. An advancement had been performed. Three months ago the mother noticed whitish spots beginning to appear on the front of the left eye. The heaping up of the conjunctiva on the site of the suturing of the muscle in its new situation had existed since the time of the operation although appearing more red in colour than at the present time. Beneath and to the corneal side a V-shaped separation of the sclera was visible through which the dark blue of the choroidal coat could be readily seen. As the limbs of this V approached the cornea they were projected into it as cloud-like broad opacities separated by a more or less transparent area. Vessels entered the opacities above and below. The corneal block produced by the slit-lamp separated into two, the anterior one curving outward and the posterior one curving inward as the illumination passed over the area enclosed by the opacities. This seemed to indicate the presence of a cyst of the cornea communicating with a rupture of the sclera, which was probably the source of the cystic change in the cornea.

ANNOTATION

The Faculty of Observation

Few, if any, of our readers will cavil at the statement that, amongst the characteristics that separate the master clinician from those of the rank and file, that of accurate and penetrating observation deservedly takes a high place. While the whole training of the medical man aims at developing this faculty it is given to only a few to excel. Of this select class the late Sir Rickman Godlee was one. Our readers are familiar with the charm of his style as evidenced in two articles contributed to this journal, one on Wharton Jones (1921) and the other on Sir Jonathan Hutchinson (1925). A further biography, that of Sir William Bowman, was under discussion but fate willed otherwise. Sir Rickman, like all really busy men, could find time for something outside his daily work, and it may not be known to all that he was a competent naturalist and archaeologist. In the all too brief period that followed his retirement from the practice of his profession he contributed a series of articles to the Whitchurch Parish Magazine (we wish that all parish magazines contained as interesting material) on the archaeology, natural history, etc., of a very interesting part of the country. These were not intended for any wider publication, but Lady Godlee has had them published as a volume with excellent photographic illustrations (two, and these of particularly high technical quality, by another contributor to our columns, Sir William Lister).* The resulting volume is one we cordially recommend to our readers, both for its intrinsic interest, and the light it throws on the author's capacity for observation outside his profession, in which it must be remembered he reached the highest honours.

It has been said that it does not matter much what a man's work is like, but it matters very much what his hobbies are. Gamekeepers have trained their observation at their own particular job so highly that at times they almost appear to the uninitiated as conjurers; but their visual acuity, as tested by the stationary test letters at six metres, will be found to be no better than that of anyone else, and may even be much worse. Our speciality is a comparatively narrow one and we would all benefit by taking up some form of outside interest, preferably one assisting in the development of the invaluable faculty of observation. Archaeology is not a bad hobby for a professional man. He may spend his spare time in tracking ancient roads or exploring ruined sites and in each

* "A Village on the Thames," by Rickman J. Godlee, George Allen & Unwin, Ltd., London. 1926.

case trained powers of observation will be of much assistance to him. Should he take to the more sedentary hobby of digging out facts from the public records, let us hope that he will not have the misfortune that is said to have befallen one of his class, who was engaged in genealogical research and who tracked a supposed ancestor through certain documents only to find the ominous sentence *sus. per coll.* appended at the bottom of the record. His worthy forebear had been hanged!

ROYAL SOCIETY OF MEDICINE—SECTION OF OPHTHALMOLOGY

THE opening meeting of the Section of Ophthalmology took place at the house of the Royal Society of Medicine, on Friday evening, October 8.

Several interesting cases were shown, notably one by Mr. Hine, of neuro-fibromatosis of the right upper lid, a case of electric retinitis by Mr. Hugh Thompson, a case by Mr. Humphrey Neame of interstitial keratitis with deep corneal striation. Mr. Mayou showed a case of "?pemphigus," also a case of massive exudation with detachment of the retina.

Afterwards, the retiring President, Sir Arnold Lawson, inducted the new President, Mr. Ernest Clarke, into the Chair, with a few well-chosen remarks. The address of the President contained a review of the progress made in ophthalmology in the last half-century, during most of which time he himself was actively engaged in the practice of this branch of medicine.

He referred to the introduction of antiseptics, and more especially to the use of the local anaesthetics, such as cocain.

It was just before this period that Donders published his work on refraction in English, and Mr. Clarke mentioned that as a return compliment, when he published his work on refraction in 1913, he did so in Dutch.

Among other things mentioned was the increasing attention being paid to errors of refraction, even small ones, and muscle balance, and emphasis was laid on the need for careful refraction work, and use of the cycloplegics. Mr. Clarke then went on to deal with the evils of chronic septic infection, and how many eye conditions were really due to this cause.

A review of some of the modern methods of treatment concluded this interesting address.

In moving a vote of thanks to the President, Mr. Treacher Collins congratulated the President on attaining his present position, and proposed a vote of thanks for the lucid address he had given.

Mr. Cyril Walker, in seconding, hoped that the President's long experience would enable him to give valuable aid in the discussion of cases that might come before the Section.

Dr. Rayner Batten showed a series of drawings of Tay's choroiditis.

NORTH OF ENGLAND OPHTHALMOLOGICAL SOCIETY

AT the Annual Meeting of the North of England Ophthalmological Society the following members were elected to the Council for the Session 1926-1927 :—*President*: Mr. Edgar Stevenson, Liverpool; *Vice-President*: Mr. H. Horsman McNabb, Manchester; *Members of Council*: Mr. T. Milnes Bride, Mr. H. Haward Bywater; *Treasurer*: Mr. S. D. Lodge; *Secretary*: Mr. Percival J. Hay.

The Local Secretaries are as follow: Mr. W. H. Kiep, Bradford; Mr. Harry Lee, Leeds; Mr. Horace Mather, Liverpool; Mr. T. Milnes Bride, Manchester; Mr. J. S. Arkle, Newcastle; Mr. Percival J. Hay, Sheffield.

At the six meetings which were held during the Session the following papers were read: "Two cases of sympathetic disease associated with evisceration and insertion of Mules' globe" (Mr. J. Gray Clegg). "An alternative to complete excision of the lacrymal sac" (Mr. H. Horsman McNabb). "A new method of treating hypopyon and other infective ulcers" (Mr. Percival J. Hay). "The differential diagnosis of cupping of the optic disc" (Mr. Harry Lee). "van Millingen's operation" (Mr. W. H. Kiep). "The treatment of hypopyon ulcers by chauffage" (Mr. Edgar Stevenson). "Operative treatment of acute dacryocystitis" (Mr. G. H. Pooley). "Retrobulbar neuritis and associated conditions" (Mr. A. S. Percival).

About 168 cases were shown during the Session. Among those of special interest may be mentioned a case of cerebral amaurosis. Both eyes appeared to be normal, but there was entire loss of vision. As evidence that the case was not wholly functional, and that there was some organic disturbance of the nervous system, there was increased muscle tone. The opinion was expressed that the case was one of anaemic degeneration of the cerebro-spinal cord, with functional symptoms super-added. A case of tuberculous choroiditis in both eyes showed a very striking symmetrical disposition of the lesions. There were two cases of congenital naevus in two girls aged respectively 16 and 19 years, involving, in the first case, the right lower lid, cheek, and soft palate, and, in the second case, the left temporal region and the

left external canthus. The first had been treated in the Light Department of the Hospital, and the second had been treated repeatedly by electrolysis, but no improvement was shown in either case. There was a beautiful case of metallic foreign body retained in the eye for ten months without disturbance of vision, which was 6/9. There was an unusual case of ophthalmic migraine, in which the patient had had five attacks, all of them accompanied by severe headaches, nausea, and diplopia, the latter being intensified with each successive attack. A Mooren's ulcer was shown which had been successfully treated with the actual cautery, and several cases of obstinate keratitis which had been successfully treated with applications of artificial sunlight. Similarly a case of chronic keratitis which had resisted all the usual methods of treatment, but yielded to peritomy, the vision improving in the course of two years from fingers at six feet to 6/18 and J.1. A case of Benson's disease was shown, being the second case of this rare disease having been shown at the meetings of the Society; the previous one was seen last year. A case of unusual interest was presented by a healthy boy, aged 11 years, who suddenly lost the sight of the right eye while walking in the street. The fundus showed obstruction of the central artery, with a cherry-red spot surrounded by oedema. This was followed afterwards by atrophy of the optic disc and sclerosis of the retinal vessels. Two brothers were shown with optic atrophy marked by rapid onset, in one at the age of 9 years, and in the other at 26 years. It was considered that they were probably of the hereditary type.

Among pathological specimens shown, there was a rare case of primary tubercle of the optic nerve with microscopic sections; a case of Mooren's ulcer with microscopic sections; a macroscopic specimen of a serous cyst of the orbit, with microscopic drawings of a similar cyst.

THE ASSOCIATION OF DISPENSING OPTICIANS

THE Association of Dispensing Opticians has recently been formed and eleven well-known firms have already been admitted to membership; the headquarters are at 439-441, Oxford Street, London.

The main principles of the Association are twofold: to safeguard the interests of dispensing opticians, and to ensure to the medical profession an efficient optical dispensing service. Membership is confined strictly to those engaged solely in optical dispensing work and their employees; and in no circumstances is an optician who professes or practises sight-testing admitted to membership in any grade. Four grades of membership, each of which carries a certificate are as follows: Grade A, employers;

Grade B, managers; Grade C, assistants; Grade D, craftsmen. There are two grades of Associate membership for those under the age of 21 years. Lectures and classes are to be held for the instruction of members and examinations are to take place periodically so that members may pass from one grade to a higher. The Association is precluded from engaging in any wage questions or trade disputes.

The main details of the attempt on the part of the sight-testing opticians to obtain a Royal Charter will be fresh in the minds of our readers. The formation of the Association of Dispensing Opticians is a direct result of this attempt and is the best possible answer. An opportunity is now offered to those who clamoured for a charter in order to improve the status of the opticians to help in bringing this about, by giving up their sight-testing and becoming members of this Association.

ABSTRACTS

I.—NEUROLOGY

(1) **Villard, H. (Montpellier.)—The Marcus Gunn phenomenon (Le phénomène de Marcus Gunn.) (Synergie fonctionelle entre l'abaissement de la màchoire et l'élévation de la paupière supérieure.)** *Arch. d'Ophtal.*, September, 1925.

(1) With a typical example of this syndrome as a text, **Villard** has written an excellent paper in the preparation of which he has referred to all or nearly all the records published since Gunn's case was presented to the Ophthalmological Society of the United Kingdom. This anomaly is variously known as the phenomenon or syndrome of Marcus Gunn, the jaw-winking syndrome, or, in France, *mâchoire à clignement*.

Villard's case, a healthy man, aged 28 years, was subjected to a thorough examination which, however, threw no light on the aetiology or pathogenesis of the "bizarre anomalie."

The value and interest of Villard's communication lie chiefly in the collective information which his study and analysis of published cases has enabled him to furnish. The phenomenon, first observed and described by Gunn has been subsequently studied by many. Villard has collected 92 reported cases, 93, including the example described by him. As Gunn's case was reported in 1883, a total of 93 in more than 40 years shows that the condition is very uncommon, "a pathological curiosity" according to the writer.

The aetiology of Gunn's syndrome is quite unknown: Villard's study of the cases discovers very few facts concerning the antecedents of the affected individuals and none which appear to have any bearing. Syphilis probably plays no part in its causation.

Two groups of cases are known: one in which the phenomenon is congenital, the other in which it is acquired: the former includes the large majority of cases. Only seven observations of the acquired form are on record; in five the phenomenon appeared at 12, 13, 14, 21, and 55 years respectively. In one case it developed the day after extraction of a tooth.

Sex appears to exert a notable influence, the large majority of cases being males; about 17 of the reported examples occurred in females.

In two observations, reported by Meyer, heredity in a direct line was noted (father and daughter), and the condition occurred in a collateral (brother) in cases recorded by Block and Vossius.

In a large majority of cases ptosis is present; its absence has been noted in only seven instances. It is usually congenital, in 79 of 83 observations, and it is not improbable that in some instances it has not been recognized at or soon after birth. The unilaterality of the ptosis is almost constant; in only three of all recorded cases has it been bilateral. It occurs nearly always on the left side, some ten instances only of right sided ptosis being recorded. It is also in the large majority of cases very incomplete. Partial paralysis of one or more of the extrinsic muscles of the eye has been noted exceptionally: one author has reported the case of twin brothers both of whom exhibited the jaw-winking phenomenon and were also the subject of congenital ophthalmoplegia externa. In a few instances, Gunn's original case among them, there was inequality of pupils, the smaller pupil being sometimes on the same side as the affected eyelid, sometimes on the opposite side.

Examination of the various hypotheses submitted in explanation of the pathogenesis of this phenomenon leads the writer of this paper to the statement that: "it is no exaggeration to say that we are in complete ignorance of the true cause of the phenomenon of Marcus Gunn." The greater number of writers on the subject support the view expressed by the Committee of the Ophthalmological Society (to which Gunn's case was referred), that the connection between the third and fifth pairs of nerves is situated at the level of their nuclei of origin. Villard while considering this explanation as the most rational finds difficulty in reconciling it with our present knowledge of the embryology of that part of the central nervous system.

A valuable list of 90 references to the literature of the subject is appended.

J. B. LAWFORD.

(2) **Cosmettatos, G. F. (Athens.)—On a case of the Marcus Gunn phenomenon. (Sur un cas de phénomène de Marcus Gunn.)** *Rev. gén. d'Ophtal.*, May, 1925.

(2) **Cosmettatos** describes a case of jaw-winking in a patient with partial ptosis. It has been said by Bernhardt that contraction of the masseter and of the temporal muscles has never been shown to be capable of causing the associated palpebral movements, but, in Cosmettatos' case, the maximum elevation of the eyelid occurred during deglutition and especially when the patient made voluntary movements of the masseters. Under the last-named circumstances the lid made a movement of elevation of as much as twenty-two millimetres whereas simple depression of the lower jaw only resulted in a three millimetre movement, while lateral and antero-posterior movements produced three to four millimetres elevation of the eyelid. Cosmettatos discusses the various theories which have been put forward to explain the phenomenon and comes to conclusions which are here transcribed:

"As to involuntary synchronous movements of the lower jaw and upper eyelid, these must be explained by internuclear connections either by means of the little cellular mass situated between the mastication nucleus and the oculo-motor nucleus (described by Cajal and others), or, also, by fibres emanating abnormally from the mastication nucleus and passing direct to the branch of the levator palpebrae. As to the peculiarity of the present case, namely, the elevation of the lid simultaneously with contraction of the masseters, that is to be explained by the central masseteric path which commences at the foot of the ascending frontal convolution and ends at the nucleus of mastication, giving, at the same time, some abnormal branches to the anterior part of the common oculo-motor nucleus which have the levator palpebrae as their destination."

A bibliography is appended which contains fourteen names, including that of Gunn.

ERNEST THOMSON.

(3) **Goalwin, Dr. Harry A. (New York).—The clinical value of optic canal roentgenograms.** *Arch. of Ophthal.*, January, 1926.

(3) **Goalwin** is of opinion that: "with the possible exception of the sella Turcica, no deep structure of the skull can be as easily and as clearly brought out on the X-ray picture as the optic canals." His technique is described in *Fortschr. a.d. Geb. d. Roentgenstrahlen*, 1924, Vol. XXXII, H. 3-4. The shape of the normal shadow closely approximates the quadrant of a circle, the limiting radii of which form the roof and outer wall. In oxycephaly the shape is usually triangular, the base of the triangle being

down and out. Other changes in shape are those associated: (1) with variations in the extent of pneumatization of the surrounding bone; (2) with chronic inflammation of adjacent structures; (3) with tumours of the orbit, sella and anterior or middle fossae; (4) with exostosis or (5) with fractures. Thus, pneumatization of the anterior clinoid process causes a bulging inwards of the outer wall; tumours of the sella may erode the bridge of bone between the optic canal and the sphenoidal fissure; bony tumours and exostoses may encroach on the lumen. With regard to size it is important to note that the canal reaches adult size at the age of three years, hence a small optic canal is just as significant in a child as in an adult. Increased density of the walls, if uniform, suggests chronic periostitis, if localized, a bony tumour or extension of osteitis from a neighbouring structure. Decreased density of the wall is often tuberculous. Decreased thickness of the wall is usually localized and suggests erosion by a soft tumour or an aneurysm. Endothelioma of the optic nerve sheath produces a general hyperostosis of the canal walls with localized erosions from within. While a positive finding may be of value, a negative one is also useful since in a given case of optic nerve involvement, it would rule out skull deformity, chronic inflammation of the walls, constriction, hyperostosis and fracture. The author is of opinion that the diagnosis of retrobulbar neuritis is not justified until a proper X-ray examination has excluded conditions such as tumours of the hypophysis, tubercle of the sphenoid, etc. The optic canal should also be examined by X-rays in all cases of fracture of the skull, and in diseases such as osteitis deformans, rickets, and acromegaly, if there are any visual disturbances. The paper concludes with a report of 15 cases, of which the following may be mentioned. Case 3. Optic atrophy left eye, optic neuritis right. Positive Wassermann. Left optic canal shows thickening due to old periostitis, with a central shadow indicating calcification of the nerve. After treatment the vision of the right eye became almost normal, but there was no recovery in the left. Case 5. Left optic atrophy. X-ray showed constriction of left optic canal due to chronic inflammation of the anterior clinoid process. Case 11. Fell down stairs five months ago, claims to have lost the sight of left eye, and has simple optic atrophy. X-ray of left canal shows triangular shape characteristic of oxycephaly, no trace of fracture; right canal also triangular but much less constricted than left. Case 12. Clinically retinitis pigmentosa. X-ray showed bilateral calcification of the internal carotids. The author makes no statement as to whether he associates this with the eye condition.

F. A. WILLIAMSON-NOBLE.

(4) **Crofton, W. M. (Ireland).—Encephalitis lethargica, "sleepy sickness."** *Irish Jl. of Med. Science*, July, 1925.

(4) **Crofton's** article opens with a description of the clinical manifestations of this disease. The symptoms may vary from a persistent hiccough to the picture of an acute meningo-encephalitis with death in a few days. The infection appears to be carried by the blood stream since the walls of the vessels are the first structures to be attacked. In severe cases, haemorrhages may occur not only from the capillaries but also from the arterioles and venules. In less severe ones there occur the well-known changes in the perivascular lymphatics. The author then elaborates an interesting thesis with regard to aetiology, and gives a well-reasoned argument in favour of the disease being due to the influenza bacillus of Pfeiffer. The steps in the argument are briefly as follow: (1) Using the proper culture medium, the bacillus influenzae was isolated in 95 per cent. of cases in an epidemic of influenza, and by use of a pure antigen of the bacillus, an 80 per cent. protection was produced. (2) The morphology of microbes is influenced by environment, the leprosy bacillus for instance may appear as a coccus, a short bacillus, a diphtheroid, or a streptothrix, all of these both acid and non-acid-fast. The bacillus influenzae when first isolated is very minute, but after subculture is much larger. Under inimical circumstances, the bacillus may divide into "splitta" which correspond with the infective granules of protozoa and Much's granules in tubercle; by this means it would be able to pass filters. (3) An infecting microbe may be at work in any particular region of the body and yet not be demonstrable in section or smear, *e.g.*, the pus of a tuberculous abscess. This may be due to the microbe being changed in some way in the tissues, and the author considers that the minute cell inclusions found by da Fano in the brains of patients dead from lethargic encephalitis are the infecting influenza bacilli. (4) The bacillus influenzae has been isolated from the blood in eight out of eleven cases of encephalitis lethargica during the acute stage. (5) The result of giving a patient antigen of the influenza bacillus during the acute stage is frequently remarkable. For instance a profoundly lethargic case has been sitting up talking sensibly two hours after injection of one million dead bacilli, and another six hours after. Sometimes a negative phase occurs with increased symtoms, necessitating lumbar puncture. The author's treatment of an acute case consists in giving the antigen, in the series of 1, 2, 3, 4 million, the intervals being dictated by reaction. If the case has lasted long, doses up to 20 million may be required.

F. A. WILLIAMSON-NOBLE.

(5) **Pascheff, C. (Sofia).—Progressive nuclear ophthalmoplegia and an unusual type of ocular spasm, in epidemic lethargic encephalitis. (Sur l'ophtalmoplégie nucleaire progressive et un tic oculaire particulier de l'encéphalite léthargique épidémique.)** *Arch. d'Ophtal.*, December, 1925.

(5) Oculo-motor disturbances, isolated and associated, occur with great frequency in encephalitis lethargica, but in **Pascheff's** experience of the disease and of the literature thereof, progressive nuclear ophthalmoplegia is a rare manifestation. He reports two examples: in one which proved fatal, an autopsy revealed pronounced perivascular infiltration in the region of the lenticular nucleus and in the pons, and notable degeneration of the ganglion cells of the oculo-motor nuclei. Neuronophagia was obvious. In the other case complete recovery ensued in the course of fourteen months.

Besides these two examples in which the paralysis was binocular, the writer records one case of total uniocular ophthalmoplegia, in a child, aged 11 years, accompanying an acute attack of encephalitis lethargica, fatal in three months.

These records, the author states, demonstrate that the ocular manifestations of epidemic lethargic encephalitis are not limited to isolated lesions of the oculo-motor nuclei but in certain instances may appear as a progressive nuclear paralysis—a true polioencephalitis superior—which may end in recovery or in death.

The second part of Pascheff's paper deals with cases of periodic spasmodic deviation of the eyes upwards. He reports three observations. This phenomenon is a late result of encephalitis; it is usually accompanied by more or less rigidity of the extremities and tremor of the tongue and eyelids. In all three cases the attacks persisted for several weeks or possibly much longer, for the patients passed from observation. Pascheff believes the condition to be one of active muscular contraction and not paralytic in nature. A useful bibliography is appended.

J. B. LAWFORD.

(6) **Walker, Dr. Clifford B. (Springfield, Mass.)—Abrupt monocular blindness, resulting in complete optic atrophy, during encephalitis with double papillitis; X-ray of optic canals.** *Arch. of Ophthal.*, March, 1925.

(6) **Walker's** case was one of encephalitis and possible meningitis which recovered after lumbar puncture. The disease was complicated by the development of a moderate degree of papilloedema in both eyes. The right eye recovered normal vision, but the left developed optic atrophy with complete loss of vision. In an attempt to explain this occurrence X-ray photographs were

taken of the optic foramina. The right foramen was found to be circular with a diameter of 5 mm. while the left was oval, the measurements being 4 × 5 mm. White's work (*Annals of Otology, Rhinology, and Laryngology*, March, 1924) indicates that 5 mm. is the critical measurement below which visual defects are likely to occur if the nerve becomes swollen. Walker's case would therefore appear to support this hypothesis.

F. A. WILLIAMSON-NOBLE.

(7) **Thomsen, Hugo.—Eye symptoms in 115 cases of encephalitis lethargica.** *Acta Ophthal.*, Vol. CXI, pp. 131-140.

(7) There can be no doubt that encephalitis lethargica occurs more frequently than is indicated by published cases. The differential diagnosis often presents difficulties. The specific virus is unknown and no special treatment has yet been discovered. The prognosis is uncertain because the after results even of mild cases are sometimes very serious and distressing or fatal. Most cases present early ocular symptoms, but passing into the care of physicians, the ophthalmic surgeon cannot easily follow their later history.

During the past five years **Thomsen** has met with 115 definite cases (putting aside 25 others in which the diagnosis was more doubtful), and in this paper summarizes his observations upon them. Of the 115 patients forty-nine were seen by him in various hospitals and sixty-six in his private practice, but most of these were admitted to hospitals later and the diagnosis confirmed by physicians. He saw on an average fifteen to twenty cases annually save in 1921, when both his hospital and private cases were nearly doubled, *i.e.*, thirty-six cases were seen. Sixty-four patients were men, fifty-one were women, four were below ten years of age, the youngest, aged seven years. The largest group (28 cases) was found between the ages of twenty and twenty-nine. An even decline followed up to the age of fifty, twelve cases were at the ages of fifty to sixty, six cases from sixty to sixty-eight, and there were none older.

The course varied greatly. In a number of mild cases recovery appeared complete in three or four weeks, but some of these developed post-encephalitic symptoms and actual Parkinsonism some years later. Others were not free of symptoms for several months, or passed into a chronic condition without any symptom-free intervals. Some died in the acute stage.

As an illustration he gives a brief record of the case of an artisan who was suddenly seized with giddiness, headache, and visual disturbance. No lethargy, but insomnia. Two days before

examination he had been able to read easily, but when seen vision was reduced to 6/36 with a large central scotoma in each eye. There was bilateral ptosis, bilateral abducens paresis, and vigorous nystagmus. He died a fortnight later.

While eye symptoms are of very frequent occurrence they may be entirely absent. Eight of Thomsen's cases had none, but he attaches no certainty to this figure since some of his patients were only seen once and may have developed ocular symptoms later, and, on the other hand, those who came to him privately did so for eye symptoms. He points out that while other writers have recorded twenty to twenty-five per cent. of their cases free from ocular disturbance the examiners were not always oculists. In this form of encephalitis the symptoms present a typical irregular picture and may change rapidly as the areas first attacked recover or new ones become involved.

The commonest symptom and one of the earliest is diplopia; it was present in seventy-five per cent. of Thomsen's patients. An exact location of the affected muscle or nuclei is often difficult, sometimes on account of the lethargy of the patient, sometimes owing to the complexity of the lesion.

In twenty-six cases one or both external recti were affected. In fourteen the third nerve. In the remainder an exact diagnosis could not be made. Affection of the fourth nerve is unusual. In five cases he found involvement of the supranuclear tracts with associated nuclear palsies. Two patients could not look to one side, three could not look upwards. Two of these recovered their power in a few months. Nine of his cases (8 per cent.) showed paresis of accommodation. In one only was there complete paralysis. Four recovered in a few months, five persited, and of these one for fully five years.

Inequality of the pupils was found in twelve cases. Argyll Robertson pupils were present in three with negative Wassermann reactions. Nystagmus was present in about one-third of the cases. Ptosis occurred in ten per cent. but was never complete, shifting in some cases from one lid to the other, and eventually disappearing in all.

Optic neuritis was present in sixteen cases and generally in a mild form. Only a few presented a typical choked disc and nearly all abated with the other symptoms. Only two developed partial optic atrophy with reduction of visual acuity or restriction of field. Retro-bulbar neuritis was diagnosed in six cases. Three recovered completely. In two there was some persistent reduction of vision and a paracentral colour scotoma resembling an intoxication amblyopia.

GEORGE MACKAY.

(8) **Abadie, Charles (Paris).—Optic nerve atrophy following spasm of the central artery of the retina. (Des atrophies des nerves optiques consécutives à des spasmes des artères centrales de la rétine.)** *La Clin. Ophtal.*, March, 1925.

(8) **Abadie,** whose very long experience entitles his opinion to great respect, has come to the conclusion that spasm of the central retinal artery is much more common than it has been considered to be. It has been misunderstood, and, when unilateral, has been confused with embolism which is so rare that Abadie has only seen two or three cases which were decisive, having been seen on the day of, or the day following the occurrence. Abadie calls attention to the differences in the symptoms and signs between the two conditions in a considerable number of words and by reference to a number of cases. Put broadly, it amounts to this, the reviewer gathers, that seen on the day of occurrence arterial blockage gives a characteristic picture perfectly described by von Graefe, but the later appearances of the fundus are less characteristic and the pale disc and diminished vessels resulting from arterial spasm can be very like the condition seen in the later stages of atrophy due to blockage. But, and here is the point (leaving out of consideration the assistance which may be given by history of spasm of other arteries); in embolism the vision is completely and absolutely abolished, whereas in spasm of the artery light perception and the light reflex persist.

Abadie also considers the diagnosis when there is double-sided spasm, as compared with the type of atrophy which escapes a precise aetiological diagnosis—and who does not know this type. The differential sign here is the persistence of the light reflex in atrophy the result of retinal arterial spasm.

ERNEST THOMSON.

(9) **White, Dr. Leon E. (Boston, Mass.)—Papilloedema in oto-laryngology.** *Arch. of Ophthal.*, March, 1925.

(9) **White's** paper is based on the ophthalmoscopic findings in 176 cases of brain abscess, meningitis, and lateral sinus infections, arising from the ear, nose and throat. The records cover a period of thirty years, and in consequence there is some confusion with regard to terminology. The author has therefore had to adopt a somewhat arbitrary classification; all cases with swelling of 2D. or over being called "marked papilloedema," with swelling of less than 2D. "slight papilloedema," while those with blurring of the disc margin and presumably no swelling are designated "optic neuritis." The findings are as follow: (1) Abscesses. In 19 cerebellar cases 58 per cent. showed disc changes, in 37 temporo-sphenoidal cases the proportion was 60 per cent., in frontal cases the fundi were normal, although the

cerebro-spinal fluid was under pressure, and in the literature, out of 100 cases of frontal lobe abscess only three showed papilloedema. (2) *Meningitis.* In three cases from nasal infection, fundi were normal. Of 60 cases from otitis media, 43 per cent. showed optic nerve changes. In 32 cases in which the spinal fluid was under pressure, normal fundi were found in 50 per cent. The fluid was examined for bacteria in 20 cases and it was discovered that streptococci were the only organisms found in the cases with optic nerve disturbances. In seven cases where other bacteria were found there were no fundus changes. (3) Lateral sinus infection, 40 per cent. showed optic nerve disturbances. (4) Accessory sinus infection, of 75 cases of nerve involvement studied by White, only three have shown oedema of the disc. In two of these the condition subsided after drainage of the infected areas. In the third, where rhinological examination was negative, the vision improved without treatment. The author quotes Cushing to the effect that "only intracranial tension can produce choked discs: I am exceedingly doubtful whether inflammation of the sinuses can cause this symptom." He also quotes Luedde's case of a woman, aged 30 years, with bilateral papilloedema and headache, who had a bilateral decompression done without improvement of symptoms, the condition going on to optic atrophy and blindness. Later bilateral sphenoiditis was found and relieved by operation. The headache disappeared and perception of light returned. Several similar cases are referred to in the paper. White's explanation of this apparent contradiction is that they are different conditions, the main point being, that in the sinus cases there is sudden and usually complete loss of vision. He suggests that this type of lesion should be called optic neuritis with oedema, to distinguish it from the papilloedema of raised intracranial pressure, where in the early stages there may be little or no loss of vision. He strongly urges rhinologists not to waste time and create a false sense of security by operating on the sinuses of a patient with papilloedema, especially if it is bilateral and associated with only slight or slowly progressive loss of vision. Again in his summary, he writes: "Swollen discs from accessory sinuses, teeth or tonsils, are an unusual condition, are transitory, and are always associated with sudden and marked impairment of vision," whereas papilloedema is the usual condition in brain tumours.

F. A. WILLIAMSON-NOBLE.

(10) **Zimmermann, Dr. E. L. (Baltimore).—The treatment of tabetic optic atrophy.** *Arch. of Ophthal.*, November, 1925.

(10) **Zimmermann's** paper opens with a résumé of the various methods hitherto adopted in the treatment of tabetic optic atrophy and mentions cases where amaurosis has resulted from the use

of mercury. According to Wilbrand and Saenger this is likely to occur in cases of diffuse involvement of the optic nerve. On the other hand, where the lesion is limited to the peripheral portion of the nerve, mercury is urgently indicated. Arsphenamin and neoarsphenamin would seem to have produced the same sort of results, but the evidence is all rather contradictory. Thus Behr mentions, as one of the types of atrophy in which treatment is contraindicated, that in which there are pronounced subjective visual disturbances with marked ophthalmoscopic signs of atrophy, good central vision, and only slight field changes. Igersheimer, however, found no effect beneficial or otherwise, as a result of antisyphilitic treatment in such cases. With regard to intraspinal treatment (addition of 0.25 to 1 mg. neoarsphenamin to patient's cerebro-spinal fluid) some cases have done very well, but here again caution is necessary. In the first place, in analyzing the results of this treatment it is important to exclude those cases where the optic atrophy is due to cerebro-spinal syphilis and not to tabes. This is sometimes difficult since primary optic atrophy may be the sole manifestation of tabes for as long a period as ten years. The cerebro-spinal cases,of course, afford a much better prognosis than the tabetic. Secondly, one has to determine the type of lesion which has caused the atrophy. Zimmermann's conclusions are based on a study of ten cases whose histories are given in the text. His experiences indicate that in general a tabetic atrophy with extensive peripheral fields allows a much better prognosis than one with only good central vision. In the first type intraspinal treatment may effect a surprising clinical improvement and in no case was any actual injury observed; in the second type, on the other hand, in which the course is apparently rapid, administration of arsphenamin, etc., may have a very deleterious effect. This is in all probability due to the occurrence of a Jarisch-Herexheimer reaction the violence of which will depend on the size of the lesion. The final conclusion is that with all the new and powerful drugs added to the therapy of syphilis, the prognosis of genuine tabetic optic atrophy is still about as it was in the pre-arsphenamin era, and that the main hope lies in the efficient treatment of early syphilis.

F. A. WILLIAMSON-NOBLE.

(11) **Pichler, Dr. J.—Bladder-eye reflex.** (**Harnblase-Augen-reflex.**) *Wien. Klin. Wochenschr.*, April 17, 1924.

(11) **Pichler** found that in the course of examining a case of coma due to cerebral haemorrhage, every time he pressed the lower abdominal wall, to estimate the fullness of the bladder, the left eye was widely opened. He was unable to determine which

side of the brain was involved as all the reflexes were abolished and the patient died soon after. .

He was able to note this occurrence in two other cases. He comes to the conclusion that this reflex together with that of the pupil are those which disappear last.

A. H. LEVY.

(12) **Bär, A. (Essen).—Sequelae of Herpes zoster ophthalmicus. (Ein Folgezustand von Herpes zoster ophthalmicus.)** *Zeitschr. f. Augenheilk.*, Vol. LV, pt. vi, pp, 393-401, 1925.

(12) **Bär** reports a case of herpes zoster ophthalmicus interesting from the deductions he draws from the following sequelae:

(1) Paralysis of the first division of the fifth nerve, with the exception of the terminal branches of the naso-ciliary and anterior ethmoidal branches, resulting, in addition to complete cutaneous anaesthesia in the right frontal region extending upwards into the scalp and involving the upper lid, diminished conjunctival sensation, and corneal anaesthesia with degenerative changes, in a diminution of sensation in the lower lid and the upper half of the side of the nose. From the derangement of sensibility in this region it is deduced that the lower lid is supplied, not only by the second, but also partially by twigs from the first division of the trigeminal.

(2) Partial unilateral paralysis of the third nerve, involving total paralysis of the fibres supplying the sphincter pupillae and levator palpebrae, the isolated sphincter involvement being deduced from the reaction of the pupil to drugs. Being of the opinion that herpes is an infective neuritis caused by a specific infection, the author traces the association of paralysis of the third and fifth nerves to their intimate connection by a communicating twig between the two trunks in the region of their entrance into the orbit. He further discusses the preferential paralysis of the parts of the third nerve affected.

W. S. DUKE-ELDER.

(13) **Beauvieux and Ristich-Goelmino (Bordeaux). The vascular supply of the cortical centre of the macula. (De la vascularisation du centre cortical de la macula.)** *Arch. d'Ophtal.*, January, 1926.

(13) This is a record of an investigation in the Laboratory of the Ophthalmological Faculty of Bordeaux, undertaken in an endeavour to explain the well established clinical fact of the preservation of central vision in hemianopia (uni- or bi-lateral) consecutive to vascular lesions of the centres of vision.

Before describing their experiments and findings **Beauvieux** and **Ristich-Goelmino** give a useful résumé of present views concerning the cortical localization of the macular bundle and the bilateral

representation of each macula in the cortex, as well as two clinical reports of hemianopia with retention of central vision.

The experiments carried out with great care consisted in the injection of the posterior cerebral artery with prussian blue or red lead, in twelve specimens. The injected brains were subsequently examined by radiography and the capillaries of the calcarine region were minutely dissected. Four very good illustrations of the vascular distribution are given. This paper is interesting and valuable, but does not lend itself to an abstract. It is worthy of study, especially with the aid of the illustrations.

The author's conclusions, however, are quoted in full:

"The occipital pole, or more exactly the posterior extremity of the calcarine fissure and the adjoining tissue, which we have called throughout, the 'macular cortical centre' is supplied with blood-vessels from the posterior cerebral artery by three different paths: (1) the calcarine artery (superficial and deep when these two branches are present); (2) the posterior temporo-occipital; (3) the artery of the cuneus, a branch of the internal perpendicular (not constant).

"If we suppose that one of these vessels is obstructed by embolism or thrombosis, we can conceive that the posterior zone of the calcarine fissure and bordering cortex may escape, in part at least, the resultant softening and necrosis by reason of the supplementary vascular supply through the other arteries of which the fine anastomoses in the *pia mater* unite the three areas.

"If we assume on the other hand, an obstruction of the trunk of the posterior cerebral artery there follows an immediate ischaemia over the whole domain of this artery and therefore of the area of the macular centre. We may admit in this case also, that by way of the Sylvian artery and its anastomoses with the temporo-occipital, a collateral circulation becomes established between the middle cerebral and those branches of the anterior cerebral which retain their permeability. Here again it is the macular centre which benefits most by the supplementary circulation since several vessels contribute to its blood supply.

"Should we not seek in this anatomical and physiological condition the explanation of the early recovery of central vision in cases of cortical blindness from oedema (uraemia) or transient ischaemia (contusion, *commotio cerebri*). However that may be, the abundance of arterial supply which we have endeavoured to demonstrate enables us to comprehend why in the brain of individuals affected by double hemianopia, there often remains in the posterior occipital region and especially at the bottom of the calcarine fissure, an islet of intact cortical substance in the midst of a bilateral softening of the cortical visual layers.

"It is we believe by reason of the multiple sources of supply

that one of the two macular centres, or a portion of one of these centres, is enabled to escape destruction, and since each receives central fibres from the two eyes, to preserve its function even in cases of lesion of the visual centres involving both hemispheres."

J. B. LAWFORD.

(14) **Brouwer, B., and Zeeman, W. P. C. (Amsterdam). The projection of the retina in the primary optic neuron in monkeys.** *Brain*, Vol. XLIX, pt. i, 1926.

(14) **Brouwer and Zeeman** have previously published some account of their investigations into the course of the optic tracts in rabbits and cats (*Schweiz. Arch. f. Neurol. u. Psychiatr.*, 1923). The present paper contains a description of secondary degenerations found after sixteen experimental lesions of the retina in monkeys. The degenerations were studied by Marchi's method, and the lesions consisted in extirpation of one eye and in various localized injuries to peripheral parts of the retina and to the upper and lower halves of the macula. The article is well illustrated and the authors desire to draw special attention to the diagram constructed to illustrate their views of the projection of the retina in the external geniculate body. An important point emerges from their observations, *i.e.*, that no degenerated fibres go to the pulvinar. This would seem to indicate that the pulvinar is not a primary optic station. They suggest that the connection of the pulvinar with the gyrus angularis may have some connection with ocular movements and with stereoscopic vision and the recognition of relative and absolute distance. The authors consider that in monkeys there is a localization of different parts of the retina in the optic nerve, similar to the localization described in man as a result of clinical and anatomical investigations. They desire to emphasize the fact that the macula has a large representation in the optic nerve, a fact denied some years ago by Igersheimer. The dorsal half of the peripheral retina is projected medially in the external geniculate body, and the lower half laterally. As regards the two main theories on the projection of the macula, those of Henschen and von Monakow, the facts observed by the authors lend some support to both sides. The views of Gordon Holmes and Lister on the subject (*Brain*, Vol. XXXIX, 1916) are more in accordance with those of von Monakow and are not opposed to those of Brouwer and Zeeman as based on the experimental evidence detailed in this paper. It is not possible to do justice to this valuable piece of work in the space at our disposal and without reproducing the excellent plates that accompany the paper. For this purpose the original must be consulted. An important bibliography is appended.

E.E.H.

(15) **Woolard, H. H. (University College, London).—Notes on the retina and lateral geniculate body in Tupaia, Tarsus, Nycticebus, and Hapale.** *Brain*, Vol. XLIX, pt. i, 1926.

(15) **Woolard** gives in this paper a preliminary report of the work that is being undertaken in the Department of Anatomy at University College, with the object of investigating the anatomical details of the organs of discriminative sensibility in the primate series. In this paper he describes the differentiation of the retina and the concurrent changes that are to be found in the lateral geniculate body in the animals mentioned. The method employed was that previously used by the author in the study of the stratification of the cortex (*Jl. of Anat.*, Vol. LX, 1925). The marmoset was the only animal the author obtained alive, and so was able to secure good fixation of the retina. The anatomical arrangements are given in considerable detail and illustrated by numerous micro-photographs. These latter are hardly up to the standard usually to be found in this journal. The author sums up his results as follow:

"(1) The retina and the lateral geniculate body have been studied in a series of closely related animals forming an ascending series.

"(2) An attempt is made to interpret the unfolding of the lateral geniculate body in terms of the work of Brouwer on retinal localization in that body.

"(3) In tupaia, which has been shown to be closely related to the lemurs by many zoologists, in particular Le Gros Clark, the retina shows no differentiated area and the vision is monocular.

"(4) Nycticebus has probably a retina without a differentiated area, but the imperfect fixation of my material forbids a definite statement. The lateral geniculate body, if my interpretation is correct, shows a highly specialized ventral nucleus which I relate to its nocturnal habits.

"(5) The retina of tarsus presents a highly differentiated area, which can be regarded as a primordium maculae luteae; and there is a corresponding development of the lateral geniculate body. This affects the central mass of the dorsal nucleus and confirms the experimental conclusions that point to the macula as being represented diffusely about the middle of the lateral geniculate body. Along with this there is a great reduction in the parts of the lateral geniculate body related to the reflex centres in the mid-brain. This, as so many other facts in the rest of its anatomy, brings tarsus right into the middle of the stream of primate evolution, and foreshadows the dominance of the cerebral aspects of visual influence.

"(6) The marmoset exhibits in its retina a close approximation to the final form of the fovea centralis. In its lateral geniculate

body there is a great increase in the size and differentiation of the central area. This central mass occupies in the dorsal nucleus a position that almost exactly parallels the localization of the macula in man according to the researches of Rönne. The parts of the lateral geniculate body related to the reflex centres in the mid-brain have dwindled almost into insignificance."

A useful bibliography is appended.

E.E.H.

II.—THERAPEUTICS

(1) **Jaensch, P. A. (Breslau).—Retrobulbar alcohol injections by the technique of Grüter: clinical and experimental studies. (Die retrobulbäre Alkoholinjektion nach Grüter. Klinische Beobachtungen und experimentelle Untersuchungen.)** *Zeitschr. f. Augenheilk.*, Vol. LVIII, p. 1, 1925.

(1) **Jaensch** recommends retrobulbar injections of alcohol as a preferable alternative to excision or optico-ciliary resection in the blind and painful eye of absolute glaucoma. The procedure can be adopted in any similar condition; it is harmless, is simple to perform, requires no special preparation, it hardly interferes with the carrying out of the patient's daily occupation, obviates the mental upset and physical disfigurement associated with the loss of an eye, and in the vast majority of cases induces complete analgesia.

The technique of Grüter is adopted (Heidelberg Cong., 1918). Cocain is instilled subconjunctivally, and a specially curved needle inserted under the conjunctiva and pushed round to the posterior pole of the eye. Two injections are made; one at the lower and inner, the other at the upper and outer quadrant, and in each 1 c.c. of 70 per cent. alcohol is deposited in the region of the posterior pole. There is slight pain for ten seconds, and in thirty seconds analgesia is complete. To obviate this initial pain, Jaensch recommends the preliminary injection of novocain in sensitive patients; but since the preliminary injection has on some occasions led to muscular paralysis (due apparently to the irregular and more widespread distribution of the alcohol in the orbital tissues thereafter), he recommends that the procedure be dispensed with wherever possible.

After the injection there is sometimes a subconjunctival haematoma, or chemosis, with a temporary oedema of the lids. Exophthalmos may develop one or two days after, but it always clears up within two weeks. Sometimes muscular paresis develops, the most common affection being a paralytic ptosis, which appears

immediately after injection or at latest within five hours, and disappears in two weeks; more rarely a sixth nerve paralysis has resulted, or a paresis of adduction or of up and down movements, but these have usually cleared up within four weeks, and have never lasted longer than three months. In all cases the cosmetic result has been most satisfactory. Corneal sensibility is lost completely at first, but later a scattered distribution of sensation returns, and no evidence of ulcerative or degenerative trouble has been met with. There is diminished sensibility in the distribution of the first division of the trigeminal, and in a few cases subsequent neuralgic pain here persisted: in a series of 29 cases, this necessitated a subsequent enucleation in two, and in three others a similar alcohol injection in the region of the foramen supra-orbitalis cleared up the complication.

The series of cases reported comprises 13 primary and 16 secondary glaucomas; they were all of long standing, and all treatment short of excision had failed to influence the pain. It is interesting that in cases where there was perception of light at the time when the injection was made, this was retained for some considerable time. Four of the cases have been under observation for two years without developing any untoward symptoms.

W. S. DUKE-ELDER.

(2) **Schultz, A. P, M.D. (Brooklyn, N.Y.).—Dry heat for iridokeratitis.** *Amer. Jl. of Ophthal.*, December, 1925.

(2) **Schultz** had the misfortune to acquire a severe form of "iridokeratitis" for which no underlying cause could be found. It was intensely painful and was no better after two months' treatment. He then sat in front of an electric heater with a copper reflector and allowed the diffuse hot light to fall on forehead, temple, and eyelid for one and half to two hours. A thermometer held in front of the eye registered 138°C. and "the relief was truly miraculous." Subsequently, this method was used at a temperature of 125°C. for one to two hours morning and evening with marked improvement in the condition of the eye.

F. A. WILLIAMSON-NOBLE.

(3) **Jackson, Byron H., M.D. (Scranton, Pa.)—Use of X-ray in uveoparotitis.** *Amer. Jl. of Ophthal.*, May, 1925.

(3) **Jackson's** paper concerns the treatment of a case of Mikulicz's disease in which there was bilateral uveoparotitis, with partial paralysis of the right side of the face. Ordinary treatment proved unavailing and during its course, a cataract developed in the left eye. Six X-ray treatments were given at weekly

intervals and marked improvement was at once noticed in the size of the glands. In consequence of this it was decided to treat the eyes in the same way, so five exposures were given through the closed eyelids at weekly intervals. Examination a year later failed to reveal any sign of active disease though the cataract remained and there were numerous synechiae and vitreous opacities. The author mentions Maitland Ramsay's well-known case which was cured by thyroid extract, and records his own in the hope that others will be encouraged to try X-rays in the early stages of this disease and so avoid the later complications.

F. A. WILLIAMSON-NOBLE.

(4) **Wherry, W. B. (Cincinnati, Ohio.)—Gonorrheal ophthalmia treated with acriflavine. Activation of bactericidal action of this dye.** *Amer. Jl. of Ophthal.*, November, 1925.

(4) **Wherry's** patient was seen by him on the tenth day of the disease. The eye had not improved under ordinary treatment. It was extremely congested and oedematous and there was a profuse purulent discharge containing gonococci. Acriflavine was used at first in a strength of 1 :5,000 with no effect. The strength was then increased to 1 :2,000. This solution was dropped into the eye six times at five minutes' intervals every four hours, and a wet dressing of concentrated magnesium sulphate kept applied to the lids in the intervals. The eye improved, but a relapse occurred and the following treatment was instituted. Twelve-thirty p.m. 3-4 drops of acriflavine 1 :1,000 every fifteen minutes for two hours, then 3-4 drops of the same strength every five minutes for half an hour at four hourly intervals for a further twenty hours, after which the purulent discharge ceased. The same wet dressings were used, but sodium chloride (amount not stated) was added to the magnesium sulphate. The effect of this is to increase the penetrating power of the magnesium sulphate. Thus, if the latter be introduced into a rabbit's stomach, none is absorbed, but if it be accompanied by enough sodium chloride, the rabbit dies of magnesium poisoning. The author brings forward evidence that initiation of infection depends on the freeing of water from colloids by bacterial action and deduces from this, that measures directed towards dehydrating the tissues should tend to check infection. Presumably the addition of sodium chloride to the magnesium sulphate by increasing its penetration aids in its dehydrating action.

The author has seen anthrax in the eye of a man cured in twenty-four hours when the accompanying oedema was reduced. A series of eight experiments was performed in order to determine the action of acriflavine. The following are some of the conclusions: In the presence of one-fourth to one-half the volume of

a thick pleural fluid, 1 in 2,000 acriflavine kills the gonococcus in thirty minutes, which time is markedly reduced by the addition of small quantities of basic sodium phosphate. One in 20,000 acriflavine alone or the same strength of sodium salicylate alone, does not kill bacillus pyocyaneous in an hour, but a mixture containing 1 in 20,000 of each, kills in forty-five minutes.

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(5) **Funaishi, Dr. Shinichi (Mukden, Manchuria).—Treatment of phlyctenular inflammations of the eye.** *Amer. Jl. of Ophthal.*, August, 1925.

(5) Funaishi is of opinion that some cases of phlyctenular disease are non-tuberculous in origin. Thus he prepared some young rabbits by injecting one group with small doses of staphylococcus vaccine, a second group with tyramine hydrochloride and a third with a solution of casein every day for three weeks. He was then "able to produce the phlyctenular inflammation of the eye in some rabbits of every group as well as in those which had been treated with tuberculin, by dropping the same reagents with which they had been treated, or others, into the conjunctival sacs." The common element among these reagents is nothing more than a protein which is foreign to the animal. Phlyctenular disease appears, therefore, to be a manifestation of protein hypersensitivity, not necessarily specific, since the same reaction can be obtained with a protein other than that used for sensitization. Further, it is possible that an eruption of phlyctenular inflammation may be caused by gastro-intestinal auto-intoxication, by resorption of destroyed products of secretions in cases of eczema, etc., and by some bacterial infections when antigenetic substances stream into the blood. On the other hand, it may occur when bacteria, or some other substances, which directly or indirectly produce the foreign proteins, invade the conjunctival sacs. In this connection, it is found that the injection of cow's milk produces surprising effects in some cases of this disease where ordinary treatment has none. The technique is as follows: Fresh aseptic milk is boiled for a few minutes and 1 to 4 c.c.—according to age and general condition—are injected into the gluteal muscles. After the first injection the temperature may rise to about 104°F. The injections are repeated every three to four days until the reactive fever reaches only 99°F. In some rare cases, where the treatment does not take effect quickly, the reactive fever does not decrease, but the temperature rises are irregular. In these cases it is necessary to change the doses of milk, or the intervals between injections.

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(6) **Lemoine, Albert, M.D.—The anti-pneumococcic properties of ethylhydro-cuprein hydrochlorid (optochin) in vivo.** *Amer. Jl. of Ophthal.*, August, 1925.

(6) **Lemoine's** experiments were performed on rabbits, in order to find out whether ethylhydro-cuprein could be injected into the anterior chamber or vitreous, in sufficient strength to inhibit a pneumococcus infection without destroying the ocular tissue. Fifteen experiments were done with the following results. Optochin, when injected into the vitreous, even in very small quantities, destroys the sight of the eye by causing spasm of the arteries with subsequent optic atrophy and loss of pupil reflex. A quantity of the drug sufficient to produce this effect will not inhibit the growth of pneumococci in the vitreous. When 0.20 c.c. of a 1 :100 solution was injected into the anterior chamber, it did not impair the physiological function of the eye, but it inhibited the growth of pneumococci which had been injected into the anterior chamber twenty minutes previously. Such a procedure would therefore seem to be justified in pneumococcal infection of the anterior chamber following ulcers, perforating wounds of the cornea or operative procedure.

F. A. WILLIAMSON-NOBLE.

BOOK NOTICES

Proceedings of the Italian Congress of Ophthalmology. (Atti del Congresso d'Oftalmologia.) Rome, October 27-30, 1925.

The Italian Society of Ophthalmology (Società Italiana di Oftalmologia), which was founded in 1924, held its Second Annual Congress in Rome in October, 1925. It issues the Proceedings of the Congress as a well-produced volume of 380 pages, with several plates, some in colour. One notes, however, that the irritating practice of issuing books with uncut pages is not yet extinct.

The Congress was presided over by Senator Professor Giuseppe Cirincione of Rome, and the inaugural sitting was attended by the Minister of Education. In his inaugural address, Professor Cirincione announced that following the resolution passed by the 1924 Congress the Public Health Department (Sanità del Regno) had agreed to make itself responsible for the prophylaxis of ophthalmia neonatorum.

The President next referred to three eminent Italian ophthalmologists who had died since the last Congress: Ferruccio Tartuferi of Bologna, Alessandro Algieri of Salonika, and Allessandro Montalcini of Turin. Of Tartuferi he recalled that

besides being an eminent clinician and operator he did an immense amount of important work on the minute anatomy of the nervous apparatus of vision, especially applying the methods of his former teacher, Golgi.

The Minister of Education welcomed the members, and presented the gold medals of the Society to Professors Albertotti and Baquis.

In the scientific sittings which followed 104 communications were made. Many of these were of the greatest interest and importance, and some will be abstracted in this journal, including the prize theses on the anatomy and embryology of the hyaloid membrane by Dr. Dejean of Montpellier, on tuberculosis of the choroid by Dr. Cattaneo of Rome, and on the anatomical basis of the scotometric appearances of the blind spot by Dr. Scullica of Sassari.

Those at the first sitting were concerned with cataract, and it was decided that one of the subjects for discussion at the 1926 Congress should be the treatment of cataract by medical means.

Of peculiar interest to English readers is a communication by Professor Albertotti on correspondence between W. H. Fox Talbot and Gian Battista Amici. The friendship between these two began in 1822 when Talbot went to Modena to obtain one of the immersion microscopes which Amici had designed. In 1841, Fox Talbot perfected his "calotype" process of making photographic pictures on paper. In the following year Amici made a communication to an Italian scientific society on Fox Talbot's researches, and the present communication consists of two unpublished letters from the English scientist and twenty-one of his "calotype" pictures, in the possession of Professor Albertotti. Of these pictures, two (reproduced in the Proceedings) Professor Albertotti has presented to the French Institute of Photography; the remaining nineteen, with the letters, he has presented to the University of Modena.

Gunshot Injuries of the Eye in the War. Dissertation for the Degree of M.D. by N. J. SHIMKIN. Delivered at the University of Kieff. Published at Odessa, 1917.

The book, in the Russian language, is dedicated by the author to his wife and contains 357 pages.

The author shows himself to be a keen observer and a constructive thinker. The book is very interesting and contains many references to other writers, among them White Cooper, Lawson and Ramsay from this country. There are also good, accurate drawings of the fundus, showing the results of contusion. The reviewer had the advantage of seeing Shimkin's original drawings. They were done in colour and were exceedingly good. Altogether

he discusses 241 cases—some of his own, some of Professor Shimanofsky, etc. He emphasizes the point that in contusion of the eyeball the chief sufferer is the uvea, and that opacities of the lens and haemorrhages of the vitreous are specially dependent upon the state of the uvea.

He was working practically without any accommodation, and had to rely chiefly on his own skill and experience, as, owing to the bureaucratic methods and neglect of the Army Medical Department, ophthalmic aid at the front was never organized. The reviewer can certify as to this from his own bitter experience.

First aid, in Shimkin's opinion, should be an aseptic dressing and immediate evacuation. All the necessary operations should be performed in hospitals 20 to 25 miles behind the fighting line. The giant electro-magnet should be easily available. (As a matter of fact such magnets were available only in Kieff and Odessa and had to serve for the whole of the south Russian front. The soldier would only arrive there seven to ten days after being wounded! Reviewer.)

It is pointed out that the number of eye wounds in this war is greater than in preceding wars and that they are more numerous in open battle than in trench warfare. Bullet injuries are more damaging to the orbit than shell wounds, because of the explosive action of the bullet. The mortality is high. As regards direct wounds of the eyeball, the kinetic energy of the foreign body is usually so great that the damage done is irreparable.

Shimkin advises against the use of atropin in the early stage, because of the already decreased tension, and recommends the use of miotics. Of 100 eye wounds, the result in 70 per cent. was uniocular blindness, and in 11 per cent. binocular blindness. Sympathetic ophthalmitis is not seen as frequently as formerly, thanks to rational treatment and early enucleation, and may be expected to be less than 1 per cent. of all cases in this war.

The most interesting and important part of the book consists of the theory and clinical features of contusion of the eyeball. Special chapters are devoted to traumatic neuroses of the eyes (uniocular diplo- and polyopia) and to wounds of the cortex cerebri and of the occipital lobes.

Report of the Government Ophthalmic Hospital, Madras, 1925. By MAJOR R. E. WRIGHT, Superintendent. Printed by the Superintendent, Government Press. 1926. Price, 1 rupee, 4 annas

The main features of the valuable reports of the Madras Hospital are well known to our readers. The report for last year, by Major Wright, adds one more to the growing series of these statistical publications.

A new feature is the appointment of a private practitioner, Dr. G. Zachariah, a member of the staff of this State hospital for the year in question; he was placed in charge of 30 beds.

The report shows a diminution in the number of cataract operations; this is not due to any falling off in the number of such cases, but to the fact that many more cases are dealt with each year in the districts of the Presidency, where ophthalmic clinics and teaching centres are being developed.

Space does not allow of our calling attention to the important research work that is being undertaken by the Superintendent and his subordinates; we note that the results will be published elsewhere in the near future. Of the more interesting cases recorded, mention may be made of a case of granuloma of the orbit due to an aspergillus of unknown species; some unusual cases of herpes zoster and herpes in facial paralysis; and cases of macular keratitis of the type described by Kirkpatrick. Some illustrations are appended.

A large part of the report is purely statistical, the facts tabulated being, as usual, very complete.

NOTES

Death

WE regret to record the death, in his 62nd year, of Dr. DAVID EWART, O.B.E., Ophthalmic Surgeon to the Royal West Sussex Hospital, Chichester.

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A Mediaeval Eyewash

FROM the chronicle of the Italian friar Salimbene, *cir.* 1285, referred to by Coulton in his *Social Life in Britain from the Conquest to the Reformation,* we learn: "Wherefore the French have bloodshot eyes; for from their ever-free potations of wine their eyes become red-rimmed, and bleared and bloodshot. And in the early morning, after they have slept off their wine, they go with such eyes to the priest who has celebrated Mass, and pray him to drop into their eyes the water wherein he has washed his hands. But Brother Bartolommeo Guiscola of Parma was wont to say at Provins (as I have often heard with mine own ears) 'Ale, ke malonta ve don Dé; metti de l'aighe in le vins, non in lis ocli'; which is to say: 'Go; God give you evil speed! Put the water in your wine when ye drink it, and not in your eyes!'"

Appointments

Mr. HUMPHREY NEAME has been appointed Assistant Surgeon to the Royal London Ophthalmic Hospital.

DR. D. HARDIE has been appointed Assistant Ophthalmic Surgeon to the Aberdeen Royal Infirmary.

MR. R. P. RATNAKAR, late R.S.O., Manchester Royal Eye Hospital, has been appointed Hon. Ophthalmic Surgeon to the King Edward Memorial Hospital, Bombay.

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International Ophthalmological Congresses

THE following letter has been sent to the various ophthalmological societies at home and abroad. At a general meeting of the Convention of English-speaking Ophthalmological Societies held in London in July, 1925, it was resolved "that this Convention of English-speaking Ophthalmological Societies hereby empowers its President, Mr. E. Treacher Collins, to appoint a standing committee of five, of which he shall be chairman. The duty of this committee shall be to obtain such co-operation as is possible from representatives appointed by various ophthalmological societies for the promotion of international ophthalmological congresses." It was also resolved that other matters of international ophthalmological interest should be referred to the international committee, when constituted.

The committee of five, constituted in accordance with the above resolution, considers that the time has now come to take further steps to form the larger representative international committee suggested. It is desired that each nation should be represented by two delegates nominated by arrangement between the principal ophthalmological societies of the nation, or, in the case where no national ophthalmological society exists, by representative ophthalmologists. The meetings of the committee will be held at The Hague in the month of July, 1927.

The committee will be glad to receive the names and addresses of the two delegates selected to represent the various countries interested as soon as arrangements can be made for their nomination.

E. TREACHER COLLINS.
EDWARD JACKSON.
JOHN HERBERT PARSONS.
G. E. DE SCHWEINITZ.
LESLIE PATON.

Oxford Slit-Lamp Course

A COURSE of instruction in the use of the slit-lamp will be held at the Oxford Eye Hospital from December 17 to 21. Names of those wishing to attend should be sent as soon as possible to Mr. P. H. Adams, 6, Holywell, Oxford.

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Oxford Diploma in Ophthalmology

THE next examination starts on March 21, 1927. The two months' course of instruction begins on January 25, 1927.

FUTURE ARRANGEMENTS

1926

November 5.—North of England Ophthalmological Society, at Leeds.

November 12.—Royal Society of Medicine, Ophthalmic Section.

December 3.—North of England Ophthalmological Society, at Bradford.

December 10.—Royal Society of Medicine, Ophthalmic Section (Clinical).

1927

January 14.—Royal Society of Medicine, Ophthalmic Section.

February 4.—North of England Ophthalmological Society, at Liverpool.

February 11.—Royal Society of Medicine, Ophthalmic Section.

March 4.—North of England Ophthalmological Society, at Sheffield.

March 11.—Royal Society of Medicine, Ophthalmic Section (Clinical).

April 1.—North of England Ophthalmological Society, at Newcastle-on-Tyne.

May 13.—Royal Society of Medicine, Ophthalmic Section.

June 10.—Royal Society of Medicine, Ophthalmic Section (Annual).